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NOISE ELEMENT

GENERAL PLAN

CITY OF HAWTHORNE

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NOISE ELEMENT

GENERAL PLAN

CITY OF HAWTHORNE

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City planning Hawthorne
" " Noise abatement

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NOISE ELEMENT

GENERAL PLAN CITY OF HAWTHORNE

I

INTRODUCTION

Continuing growth, advancing technology, and the increasing use of motor vehicles and other types of machinery have all contributed to increasing levels of noise, especially in urban environments. Today, noise ranks as one of our major pollution problems and, if not controlled, can jeopardize the health and well-being of those affected. Often defined simply as "undesirable sound", noise has become a primary factor in decision-making, especially at the local level in decisions concerning land uses, development, and comprehensive planning. The State of California, in mandating a Noise Element for all general plans, has recognized the need for more and better information at the local level as a basis for these decisions, and the desirability for local jurisdictions to define their goals and policies regarding noise and to outline implementation procedures for dealing with these problems.

II

CALIFORNIA STATE LAW

AUTHORITY

The California Government Code Section 65302(g) requires a noise element of all city and county general plans, as follows:

"A noise element in quantitative, numerical terms, showing contours of present and projected noise levels associated

with all existing and proposed major transportation elements.

These include but are not limited to the following:

- (1) Highways and Freeways
- (2) Ground rapid transit, including railroads
- (3) Airport ground facilities"

III

RELATIONSHIPS OF THE NOISE ELEMENT

As a part of the Hawthorne General Plan, the Noise Element is related most closely to the Circulation, Housing, and Land Use Elements, since it provides noise level standards and other information related to the compatibility of land uses. Circulation and other transportation facilities should be better planned, located, and designed with the aid of this element.

The City of Hawthorne Noise Element answers questions dealing with environmental impact and the economic effects of noise pollution. Information concerning noise levels and sources contained in the Noise Element can be used in conjunction with other appropriate criteria in arriving at a multitude of planning-related decisions. Therefore, the Noise Element should be used as a guide whenever seeking solutions to problems concerning noise.

IV

GOALS & POLICIES

There is a single comprehensive goal for the City of Hawthorne Noise Element. Supporting the goal are several policies which provide direction for the achievement of the goal. The policies are based on

research findings of existing noise problems in the City of Hawthorne, input by citizens of the community and City departments, and an evaluation of each to determine the social, political and economic feasibility.

A. City of Hawthorne Noise Element Goal:

"To prohibit or effectively reduce all unnecessary excessive and offensive noises throughout the City of Hawthorne which are detrimental to the public health and welfare and contrary to the public interest."

B. Policies:

1. Ordinances

Based on acceptable noise standards, employ effective techniques of noise abatement through such vehicles as the 1973 Edition of the Uniform Building Code, and Noise, Subdivision, and Zoning Ordinances.

2. Noise Source

Whenever possible and appropriate, control, at the source, all sounds which exceed community acceptable noise levels.

3. Transportation Noise - Regulatory Measures

Provide for the reduction of the present and future impact of excessive noise from transportation sources through judicious use of technology, planning and appropriate regulatory measures.

4. Local Assistance

Provide governmental assistance, as appropriate, to persons, groups, or organizations engaged in developing and implementing noise abatement procedures including home improvements, installation of noise attenuation devices, etc.

5. Federal and State Legislation

Support Federal and State Legislation which will provide for noise abatement and the distribution of the costs of noise abatement programs among the producers of the noise.

6. Compatible Land Uses

Explore possibilities for and require land use adjustments and urban design techniques that will provide for compatible uses adjacent to major transportation facilities while protecting residential and other characteristically "quite" land uses from future noise impact.

7. Funding

Be aware of, and seek out, any available funds from appropriate levels of County, State and the Federal government that could be used to underwrite the costs of noise abatement programs, including enforcement of the existing noise regulations of the Hawthorne Zoning ordinance.

V

CHARACTERISTICS AND MEASUREMENT OF NOISE

Noise, generally described as "undesirable sound", is often a matter of taste or preference, making regulation difficult in some cases. For example, loudly-amplified music that is entertaining for one person, may be very annoying for his neighbor. Therefore, in recent years many standards and methods of monitoring noise have been developed. Today's generally-accepted standards are summarized in the City of Hawthorne Noise Element and additional standards have been incorporated in various codes and regulations used by the City or enforced by other agencies in the City.

Sound involves three major elements as shown in Figure 1, Page 5:

(1) The sound itself or the "source", (2) The transmission paths, and (3) The receiver. Noise, as differentiated from acceptable sound, is determined by the functions of pitch, loudness, and duration. These terms are described briefly as follows:

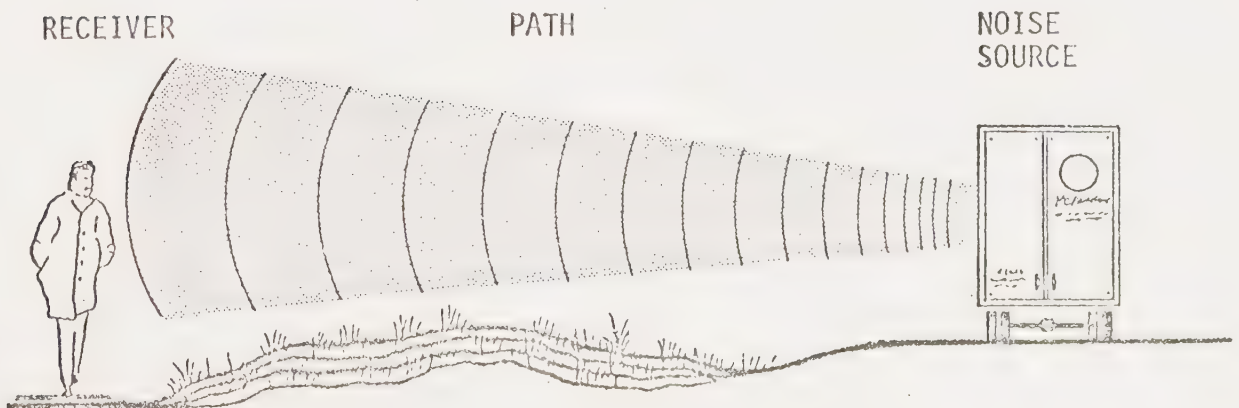
Pitch -- This is the frequency of pressure variations per second and expressed in cycles per second (cps) or hertz (Hz). The human ear normally hears sound from 20 to 20,000 cps and human voice ranges from about 500 to 5,000 cps.

Loudness -- Also known as "intensity", this is based on the magnitude of the variations in air pressure and measured in "microbars". Since the microbar range is great, noise is now expressed in decibels which are actually logarithmic ratios to facilitate easier measurement and understanding.

Duration -- This is the measure of how long a sound persists, usually expressed in seconds.

FIGURE 1

THREE MAJOR ELEMENTS
OF SOUND



Noise level meters that are normally used to measure sound are available with several scales. The scale most often used, and the one which is used by the City of Hawthorne, is the Community Noise Equivalent Level (CNEL) which is based on the noise measurement (decibel) as designated by the symbol "dB" and adjusted to account for noise as perceived by the human ear. This is known as the "A-weighting" process with the symbol now becoming dB A . Through this process the acoustical signal is detected by the microphone and then filtered to heavily weight those portions of the noise which are most annoying to individuals.

Since a given level of noise may be more or less tolerable, depending on the duration of exposure experienced by a person (receiver), some noise measures, including CNEL, consider the duration of the noise as well as the A-level variation. The CNEL is the measure that is most widely recommended for use in Noise Elements and has been adopted for use by the State Department of Aeronautics and the State Commission of Housing and Community Development. The CNEL measure divides the day into three portions and adjusts the noise measurements according to their impact during each period of the day. These periods are:

- (1) DAY -- 7:00 a.m. to 7:00 p.m.
- (2) EVENING -- 7:00 p.m. to 10:00 p.m.
- (3) NIGHT -- 10:00 p.m. to 7:00 a.m.

The overall CNEL value is arrived at by averaging the daytime measurements and the weighted measurements of the other two periods.

Typical noise levels in Hawthorne can be expected to range from 30 dB A (Very Low) to 100 dB A (Very High) and higher. The "Table of Sound Levels", as shown on Figure 2, Page 7, lists the decibel ranges and examples of the types of noise sources that could create each noise situation in a typical urban environment.

FIGURE 2

TABLE OF SOUND LEVELS

<u>SOUND LEVEL</u>	<u>DECIBEL LEVEL</u>	<u>RELATED COMMUNITY NOISE</u>
Threshold of Pain	140	
	130	
Uncomfortably Loud	120	Oxygen Torch
		Scraper-Loader
		Rock 'n Roll Band
	110	Jet Take-Off at 1000 feet
Very Loud	100	Electric Furnace
		Power Lawnmower
	90	Motorcycle at 50 feet
		Prop. Aircraft at 1000 ft. alt.
Moderately Loud		Diesel Train at 50 feet
	80	Garbage Disposal
		Passenger Car, 65 mph at 25 feet
	70	Dishwasher
		T. V. Audio
		Vacuum Cleaner
	60	Air Conditioning Unit at 50 feet
		Normal Conversation
		Bedroom Air Conditioner
Quiet	50	Light Traffic at 100 feet
	40	
Very Quiet	30	Quiet Residential Area at Night
	20	Leaves Rustling
Just Audible	10	
Threshold of Hearing	0	

In contrast to the obvious sounds and noises which have obvious sources, there is a huge class of intermediate sounds, usually referred to as "ambient" or "background" noise. These are often thought of as "sounds of the city" and are ever-present in urban areas. Ambient noise is very difficult to control since it consists of a mixture of sounds with sources in all directions from the receiver and often at great distances. Because of these characteristics, attempts to reduce the ambient noise in a community must be aimed at many different noise sources. It is usually easier to utilize standards and regulations that are aimed at preventing new noise sources that would tend to raise the ambient levels and at curtailing excessive noise produced by major sources.

Sounds that exceed the ambient background noise levels are called "intrusive" sounds. Unlike the ambient noise, the sources of these noises are usually easy to identify. The most irritating of these are not necessarily the loudest, but are the "fluctuating" or "impulsive" sounds such as riveting, squeaking, or other sounds that are unexpected or startling. As the ambient noise levels decrease in the evening or night-time hours, these intrusive noises in the City of Hawthorne would include motor vehicle horns, motor vehicle engine acceleration (racing or motors), tires squealing, loudspeakers, construction equipment, and trains.

Unlike ambient noise, the sources of intrusive noises can usually be easily identified and many are already prohibited in the Noise Regulation of the Hawthorne Zoning Ordinance. The problems related to these are often difficult to solve because of the temporary nature of the noise or because of the unscheduled movement of trucks, motorcycles, etc. that are beyond the City's control. Future changes can often be foreseen far in advance and provided for, but noises such as

automobile horns and tire squeal, which are often necessary, or loud motorcycles, are law enforcement problems. Noises such as loud-speakers or other commercial and industrial noises are normally code enforcement problems with regulations already existing.

VI

IMPACT OF NOISE

Man is capable of adapting to various types of noise with few ill effects. However, noise can cause detrimental physical and psychological effects and discomfort. Noise levels which exceed 85 dB A are generally considered to contribute to hearing loss when experienced for long durations. State and Federal health and safety regulations currently protect workers at levels of exposure which exceed 90 dB A for each eight hour work day.

In 1972, the Congress of the United States enacted the Noise Control Act which authorized the Environmental Protection Agency (EPA) to publish descriptive data on the effects of noise and establish levels of noise "requisite to protect the public health and welfare with an adequate margin of safety." These levels are separated into health and welfare (annoyance levels) as shown on Figure 3, Page 10.

The EPA has stated that approximately 80 million people in the United States, or 37% of the population, are significantly impacted by noise, half of whom, or approximately 40 million people, are exposed to levels that can damage their hearing or otherwise affect their health. Using this ratio means that approximately 10,000 persons in Hawthorne are affected. Noise is not only detrimental to health and well-being, but it is also costly. The World Health Organization has estimated

that over \$4 billion is spent by United States industry each year for noise-related absenteeism, reduced efficiency, workman's compensation claims, and mental illness.

FIGURE 3

SUMMARY OF NOISE LEVELS REQUISITE TO
PROTECT PUBLIC HEALTH AND WELFARE

<u>EFFECT</u>	<u>LEVEL</u>
Hearing Loss (health) -----	70 dB*
Outdoor activity interference ----- and annoyance	55 dB**
Indoor activity interference ----- and annoyance	45 dB**

* Averaged over a 24-hour period.

** Averaged over a 24-hour period with a
nighttime weighting of 10 dB (10 pm to 7 am).

Approximately 5 million persons in the United States are affected by permanent hearing loss. Industrial activities account for the largest percentage of noise-induced hearing loss. This disability can occur in other areas of the urban environment as well, however.

Sound also has a significant effect on body muscles and other organs. It has been found that sounds of a short duration over 70 dB may cause changes in the muscles and glands which affect the rate of heartbeat, constrict the peripheral blood vessels, alter breathing, and affect digestion. Exceptionally intense levels of noise, 130 dB and over, have been known to cause vertigo and cardiovascular disorders and may also produce changes in the function of the brain, adrenal

glands, and reproductive organs. Such levels of sound are rarely reached in the Hawthorne environment but are discussed here to point out the possible dangers of excessively high noise levels.

More relevant to the Hawthorne environment are the problems relating to sleep or speech interference, especially as they affect the young. Constant noise often adversely affects the development of speech patterns in children and may seriously hamper school programs. Therefore, it is especially important to ensure a noise-free environment around public schools and other public facilities where people meet and communicate.

VII

NOISE STANDARDS

The Federal and State governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and various other adverse physiological, psychological, and social effects associated with noise.

Two legislative acts regulating industrial and occupational noise resulted from action by the Department of Labor in 1969. The first was the Walsh-Healey Public Contracts Act and the other the Occupational Safety and Health Act (OSHA) in 1970. Two Federal agencies that have established noise level criteria for various types of land use are the Federal Highway Administration (FHWA) and the Department of Housing and Urban Development (HUD). Figure 4 on Page 12 shows the criteria established by HUD for granting financial support for the construction of residential dwellings in noise-impacted areas, along with descriptions of the various acceptability categories.

FIGURE 4

EXTERNAL NOISE EXPOSURE STANDARDS
FOR NEW CONSTRUCTION.

	<u>HUD POLICY</u>	<u>CATEGORY DESCRIPTIONS</u>
CLEARLY ACCEPTABLE	Does not exceed 45 dB(A) more than 30 minutes per 24 hours.	Both indoor and outdoor environments are pleasant.
NORMALLY ACCEPTABLE	Does not exceed 65 dB(A) more than 8 hours per 24 hours.	Indoor environments still pleasant with normal build- ing construction and outdoor environments reasonably acceptable for recreation and play but noise causes some concern.
NORMALLY UNACCEPTABLE	Exceeds 65 dB(A) 8 hours per 24 hours.	More severe noise exposure making it necessary to use unusual and costly building construction and outdoor barriers to make the environ- ment tolerable.
CLEARLY UNACCEPTABLE	Exceeds 80 dB(A) 60 min. per 24 hours. Exceeds 75 dB(A) 8 hours per 24 hours.	Noise exposure is so severe that the construction costs to make the indoor environment acceptable would be prohibiti and the outdoor environment would still be intolerable.

Source: Department of Housing and
Urban Development.

Recent changes in the Noise Insulation Regulations of the State of California Administrative Code deals with noise insulation from exterior sources to insure that new dwellings constructed in noise critical areas shall be designed to prevent the intrusion of exterior noises beyond pre-scribed levels. These regulations are applicable to all new residential structures such as hotels, motels, apartments, and dwellings other than single-family dwellings. Since single family homes are excluded under State regulations, the City of Hawthorne should adopt the requirement that all residential units, including single-family homes, conform to these noise regulations.

To aid in the evaluation of issues involving noise, the CNEL ranges as shown on Figure 5, page 13, are considered to be the maximum acceptable for each of the various land uses. The Noise Level Contour Map will be helpful in evaluating transportation noise as it affects these land uses.

FIGURE 5

LAND USE SUITABILITY
IN NOISE IMPACT AREAS

<u>LAND USE</u>	<u>ACCEPTABLE MAXIMUM</u> <u>CNEL RANGE</u>
Auditoriums, Concert Halls -----	60 dB(A)
Single-Family Residential -----	65 dB(A)
Multiple-Family Residential -----	65 dB(A)
Schools, Libraries, Churches -----	65 dB(A)
Hospitals, Nursing Homes -----	65 dB(A)
Sports Arenas -----	65 dB(A)
Playgrounds, Parks -----	65 dB(A)
Transient Lodging -----	70 dB(A)
Golf Courses, Stables, Cemeteries -----	70 dB(A)
Movie Theaters, Restaurants -----	75 dB(A)
Office Buildings -----	75 dB(A)
Commercial - Retail -----	75 dB(A)
Commercial - Wholesale -----	80 dB(A)
Manufacturing, Utilities -----	80 dB(A)

Source: Department of Housing and
Urban Development.

SOURCES OF NOISE IN HAWTHORNE

The CIR guidelines emphasize transportation-related noise. This is the type of noise of most concern in this Noise Element. However, in order to get a better overall understanding of community noise in Hawthorne the research for this element went beyond transportation noise and a brief discussion is included of the other three basic categories of recreation, commercial/industrial, and residential.

A. TRANSPORTATION NOISE SOURCES

Transportation noise consists of the varied sounds of horns, engines, tire squeal, sirens, and other noise caused by cars, trucks, buses, trains, airplanes, etc. Unfortunately, except for airplanes, most of these noise sources are not easily measured individually and together they make up the bulk of the ambient noise of the City.

In Hawthorne, the transportation noises of most concern are those originating from the San Diego freeway, the Hawthorne Municipal Airport, the major thoroughfares and the railroad. The state and local agency responsible for the construction or maintenance of such facilities is responsible for the provision of present and projected noise levels of their respective facility.

1. Freeway Noise

There is at the present time one major freeway that affects Hawthorne. It is the San Diego Freeway which has a significant noise impact on the west side of the City.

The State of California Department of Transportation provided the noise contours emanating from the San Diego freeway. These contours are shown on the Noise Level Contours Map. From this map it can be easily seen that the City and many residential

areas are affected by freeway noise, including some areas within the 65 dB(A) contour which is considered excessive by most standards. These areas should require special consideration for noise attenuation whenever new residential units are constructed or when major rehabilitation is undertaken. Also, any public facility that is used by people for various functions, especially Hawthorne High School, should be given priority consideration for future noise attenuation or abatement programs.

2. Vehicular Noise on City Streets

Noise emanating from surface streets in Hawthorne constitutes a major source of noise. These contours are shown on the Noise Level Contours Map. Many variables affect the amount of exposure to vehicular noise within the community including:

- a. Peak hourly automobile traffic flow in both directions.
- b. Number of trucks and buses.
- c. The amount of gradient in the road and the direction of the traffic in relation to it.
- d. Stop and go traffic caused by signals, stop signs, etc.
- e. Average speed of traffic.
- f. Existence or location of barriers between the noise source and the receivers such as pedestrian areas, parks, residences, etc.
- g. Mechanical condition of the vehicles including old or modified exhausts.

Major revisions in the California Vehicle Code have done much to lower the vehicle noise level limits by adding restrictions and regulations affecting test procedures, exhaust standards, and even noise standards for tires. The "California Highway Code" defines "acceptable" noise levels of vehicles at a drive-by distance of 50 feet from the centerline of travel lane, as shown in Figure 6, Page 16.

FIGURE 6

CALIFORNIA HIGHWAY CODE
VEHICLE NOISE LEVEL

<u>VEHICLE TYPE</u>	<u>NOISE LEVEL</u>
Trucks & Motorcycles - State Law Maximum -----	90 dB(A)
Acceleration - Muffled Diesel Trucks -----	87 dB(A)
Cars & Pickups - State Law Maximum -----	86 dB(A)
Acceleration - "Quiet Truck" -----	83 dB(A)
Muffled Diesel Trucks* -----	80 dB(A)
"Quiet Diesel Truck" -----	79 dB(A)
California's 1968 Goal for all Vehicles -----	70 dB(A)
Unmodified Sedan -----	65 dB(A)

*Unmuffled Diesel Trucks have been
measured at 105 dB(A)

Even with progressive legislation, there are still and will continue to be many unusually and unnecessarily noisy vehicles on the streets and highways. It is very difficult to protect the community from all the loud motor vehicles, modified exhausts, squealing tires, horns and similar noises. While law enforcement efforts are continuing, Hawthorne can make additional efforts on its own. Among these might be:

- a. To ensure that streets are handling traffic equal to or less than their designed capacity.
- b. Continue the development of an efficient circulation system in the City.
- c. Encourage residents to maintain their motor vehicles properly at all times.
- d. Promote the use of public transportation.
- e. Provide truck routes with the least possible disturbance to residential areas and other "quiet" land uses.

- f. Promote or encourage the use of other transportation alternatives, including the provision of bicycle facilities.

3. Railroad Noise

The Noise Level Contour Map does not show those contours produced by the two (2) railroad "line" operations in the City of Hawthorne. One railroad line generally parallels Broadway. According to the Southern Pacific Transportation Company, there is an average of only one (1) freight train per day along this line. The other railroad line traverses a small portion of industrial land in the southwest corner of the City. This line is operated by A.T. & S.F. Railroad Company.

In an effort to make available all required noise information pertaining to their facilities, the railroad companies combined their efforts to have a general overall railroad operations noise guide prepared. This document, "Assessment of Noise Environments Around Railroad Operations", was used in evaluating the effects of railroad noise on Hawthorne with the purpose of preparing noise contours. According to the railroads, the contours are based primarily on the number of trains per day, their average length and speed, and the gradient of the tracks. Railroad noise has a minimal or no impact in Hawthorne because of the infrequency of trains passing through the City and because the A.T. & S.F. line is located in an industrial area that creates more noise than the railroad line.

It should be noted here that the noise contours of the San Diego freeway indicate the "theoretical" noise generated by this facility. Because of the unique physical characteristics of each individual community, a major and detailed noise study

would have to be undertaken to generate similar accurate contours. Therefore the contours have been generated from known characteristics of this type of facility, taking into consideration major barriers and land features such as hills, etc., but not the attenuating effects of all the City's structures, landscaping and other unique features. Therefore, although the noise theoretically travels as shown on the Noise Level Contours Map, it is also affected by buildings and other features of the City and mixes with, or is partially masked by, other sounds in the community. Therefore, at greater distances, freeway noise may be less noticeable but is still present.

4. Airport Noise

a. General Description

The City owns and operates a general aviation airport known as the Hawthorne Municipal Airport. It is located south of 120th Street between Prairie Avenue on the west and Crenshaw Boulevard on the east. The 1974 average daily aircraft departures was 256, down from 318 in 1972. This downward trend is not expected to continue. However, there is no expected increase in either volume or change in aircraft types in the next four (4) years.

The airport has a single runway generally aligned east to west. Adjacent land uses are industrial or vacant to the west, north (on the airport site) east and south. North of 120th Street paralleling the runway are predominantly single family residential uses.

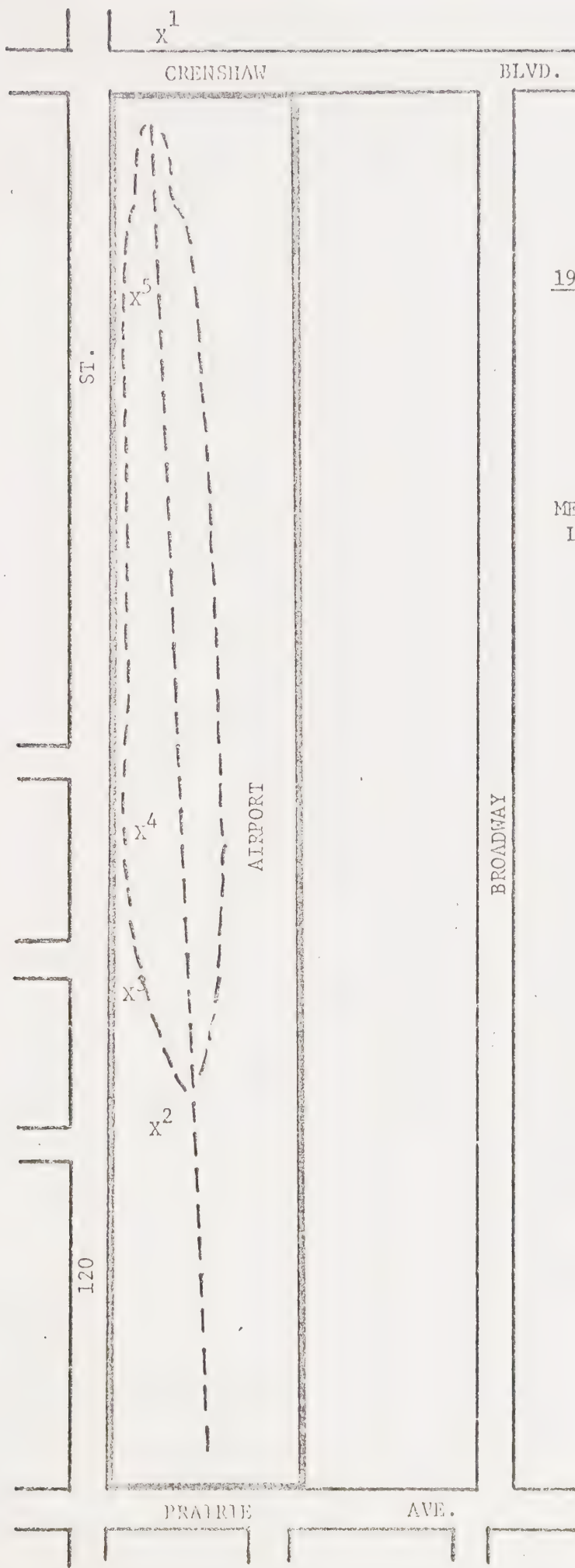
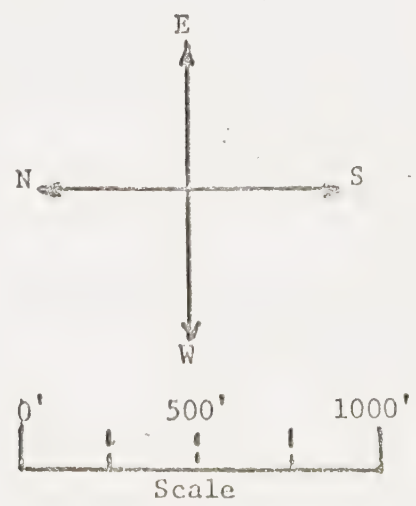


FIGURE 7

HAWTHORNE AIRPORT
1972-1975-1980 '70' CNEL CONTOUR

MEASUREMENT LOCATIONS CNEL READINGS

X	DBA
1	63.3
2	67.5
3	69.0
4	73.6
5	69.3



b. Noise Contour and Measurement

Figure 7 on Page 19 shows the 1972, 1975 and 1980 "70" CNEL contours. The 1975 CNEL Value of '70' will have zero noise impact on the airport area. Figure 7 also shows the five (5) separate locations at or near the airport boundary where a total of 592 noise measurements were recently made. The CNEL measurement values for each of the five locations are shown on a table on Figure 7. Location No. 4 shown on Figure 7 exceeds 70 CNEL. This is because of a fueling station near this location.

c. Community & Special Noise Factors

There is no community organization or organized group in the City of Hawthorne that is concerned with aircraft noise. There have been occasional complaints to the City Council and the airport tower has received some individual complaints about noise. These complaints are usually associated with the pusher type aircraft.

There is one executive jet aircraft that operates from Hawthorne Municipal Airport. This aircraft is required to take-off and land to and from the east, a relatively unpopulated area. This indicates that the Airport Manager is concerned about noise abatement and potential community reaction.

d. Analysis & Recommendations

Although, at the present time, the airport has a zero noise impact on the adjacent area, it could become non-zero if there were an increase in jet operations to more than two (2) a day. It could also become non-zero if the number of aircraft runups

at the refueling area are increased by a factor of two. It appears that neither of these situations will occur in the foreseeable future.

Although there is no evidence to indicate that there is a noise problem at the airport, the Airport Manager should continue its noise abatement procedures for jets and to initiate procedures for reducing the CNEL readings at the refueling area.

B. RECREATION NOISE

Other sources of community noise, especially during the day, are the recreation areas, such as ballfields, outdoor swimming pools, school playgrounds, parks, and other recreational facilities throughout the City of Hawthorne.

Fortunately, the activities that take place in these areas are usually confined to daylight hours and not often a problem after dark. Also, recreational noise is usually less irritating to most people than other types of noise as long as the recreation does not involve noisy recreational vehicles such as go-carts, off-road type motorcycles and other similar vehicles. Laws already exist in the City of Hawthorne to deal with this problem so it is a law enforcement matter and no further action is recommended in this element.

C. COMMERCIAL AND INDUSTRIAL NOISE

In commercial and industrial areas in the City of Hawthorne where noise is a part of the day-to-day operation of the businesses, any restrictions on noise should take into consideration the characteristics of the particular use and be related to appropriate standards for that use as outlined on Figure 5, Page 13.

During the early planning and design stages of new commercial and industrial development, appropriate noise attenuation devices should be considered as an integral part of the design. The addition of an earthen berm, wall, or other attenuator could result in greatly reduced noise levels in adjacent neighborhoods.

Industrial and commercial businesses which create clearly unacceptable noise can, in most instances, be dealt with through the City's existing Noise Regulation of the Hawthorne Zoning Ordinance.

D. RESIDENTIAL NOISE

Typical residential noises in the City of Hawthorne include power lawnmowers and other small power tools, air-conditioning units, excessively loud human voices, barking dogs, and amplified music equipment. Walls or other large barriers between individual homes are not a solution and would be detrimental to neighborhood unity. The most effective way to deal with the residential noise problems is through the residents' own cooperation and consideration for the privacy and wellbeing of their neighbors. When this fails, the Noise Regulations of the Zoning Ordinance and other appropriate codes are available for the protection of the affected residents.

IX

NOISE CONTROL MEASURES

There are three basic procedures that should be used to reduce noise:

- (1) Control the noise at the source with enclosures, alternate designs, etc.
- (2) Interrupt the path of the noise with barriers, distance separation, structures, etc.
- (3) Personal protection such as earplugs, adaption to the noise problem, or leaving the noise-impacted area.

As with most pollution problems, the major emphasis should be placed at the source of the problem and personal protection should never become necessary. However, until noise sources can be effectively controlled, interruption of the path is considered an acceptable solution. In fact, procedure No. 2 above is often the most feasible, both technically and economically. It is usually much easier and cheaper to build a wall around a noisy business than it would be to make expensive modifications to an already noisy facility. The importance of early planning and design modifications before the facility is built is evident.

Where it is not economically or physically feasible to reduce the noise levels of certain land uses to a point of compatibility with other "quiet" land uses, it may be necessary to ensure future compatibility through appropriate zoning. In this way, certain characteristically "noisy" uses such as automotive repair shops, could be physically separated from the quieter uses and possibly provided for in or near industrial areas or in higher intensity commercial areas. In turn, commercially-zoned land adjacent to residential areas could be reserved for only lower-intensity quieter businesses.

Another tool that has proved to be very effective in many communities is the comprehensive noise control ordinance. The ordinance should be complete and cover all of the noise problems that might occur in the City of Hawthorne. However, the major problem that has to be avoided is the lack of enforcement of the ordinance. Without personnel assigned to the job of monitoring community noise and looking into complaints, the ordinance will have little mitigating effect on current noise problems.

CONCLUSIONS AND RECOMMENDATIONS

The City of Hawthorne is plagued by many of the typical noise problems found in similar cities of its size. The only minor problem could be railroad noise, if the frequency of trains is increased or if they travel at an increased speed. The San Diego freeway and the major thoroughfares handle large amounts of traffic and contribute greatly to the ambient noise levels of the community.

Noise information has been gathered and mapped for the major transportation systems of the City of Hawthorne as directed by the CIR guidelines. It is the responsibility of the City to provide or generate similar additional information, if and when such information becomes necessary, pertaining to surface streets, other City facilities and permanent noise sources. Additional educational information has been included in this element concerning the characteristics of sound and noise, non-transportation noise sources, and a summary of standards the City should follow in implementing the goal and policies of this element.

In order to control unnecessary noise, more emphasis should be placed on enforcement of the existing Noise Regulations of the Zoning Ordinance and additional personnel assigned to this task. Continual updating of the noise standards as necessary and the application of these standards to everyday land use and planning decisions will help to control noise problems by controlling them at their source, which is the easiest and most economical method, if carried out prior to construction.

Through the implementation of the Noise Element policies and those noise-related policies of other General Plan Elements, particularly the Circulation and Land Use Elements, the City can expect to reduce present noise levels and prevent most future noise problems for the benefit of the community and its residents.

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